

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: Mike Jury, Project Manager, Bay City District Office
Remediation and Redevelopment Division

FROM: Jeff Pincumbe, Geologist, Geological Services Section
Remediation and Redevelopment Division

DATE: May 22, 2019

SUBJECT: F-41 PFC Contamination, Iosco County, Site ID #35000153
GSS Job #829 (Part 1)
Groundwater Sampling Data Package-April 2019

This data package is for Part 201 work requested by the Department of Environment, Great Lakes, and Energy (EGLE), Remediation and Redevelopment Division's (RRD's), Bay City District office for the subject site located in Iosco County, Michigan (Fig 1). On April 15, 2019, RRD's Geological Services Section (GSS) collected groundwater samples from 7 monitor wells (Fig 2). GSS received the final laboratory results on May 8, 2019.

The data package includes the following:

- Site Location Map (Fig 1)
- Monitor Well Location Map (Fig 2)
- Groundwater Contour Map (Fig 3)
- Sampling Field Data (Table 1)
- Laboratory Table with Comparison to Action Levels (Table 2)
- Elevation Data (Table 3)
- Vista Analytical Laboratory Results (Appendix A)

On April 15, 2019, GSS collected groundwater samples from 7 monitor wells at the site using a low flow method. The field data collected at the time of sampling is included on Table 1. The groundwater samples were submitted to Vista Analytical Laboratory and analyzed for Perfluorinated Hydrocarbons (PFCs) (Table 2) (Appendix A).

Laboratory results show PFCs were detected in the groundwater samples collected from CR-MW-2 and CR-MW-6. The concentrations of PFOA and PFOS in the sample from CR-MW-2 was 38.64 ng/L and the concentration in the sample from CR-MW-6 was 7.52 ng/L. Both concentrations are below the PFC Action Level of 70 ng/L.

Static water levels were measured at the time of sampling and converted to a top of groundwater elevation (Table 3). Staff used the top of groundwater elevations to create a Groundwater Contour Map (Fig 3) which indicates a groundwater flow direction to the east-northeast.

If you have any questions, contact me at 517-243-3171.

Jeff Pincumbe
(KZ)

Attachments

cc: Burrell P. Shirey, EGLE

704617 E
441109 N

714736 E
441109 N

F41 / Colbath Road

Loud Drive

River Road

704617 E
433003 N

714736 E
433003 N

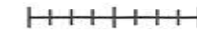
LEGEND

- DATUM - NAD83
- PROJECTION: MICHIGAN GEOREF
- NORTHING AND EASTING COORDINATES (IN METERS) ARE IN CORNERS OF MAP

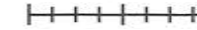
AERIAL PHOTO SOURCE: MI CENTER FOR SHARED SOLUTIONS
 AERIAL PHOTO DATE: NA
 AERIAL RESOLUTION: USGS Topographic



0 180 360 720 Meters



0 650 1,300 2,600 Feet



1 inch = 2,667 feet

Wurtsmith Air Force Base
 ERNIE ID 53000152, 53000153, 53000154
 OSCODA & AU SABLE TOWNSHIPS, IOSCO COUNTY

SITE LOCATIONS MAP

GEOLOGIST Jeff Pincumbe Geological Services Unit		CREATION DATE October 2018
Remediation and Redevelopment Division	FIGURE 1	



706430 E
441223 N

708329 E
441223 N

706430 E
439701 N

708329 E
439701 N

LEGEND

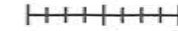
● Soil Boring / Monitor Well Location

- DATUM - NAD83
- PROJECTION: ESRI
- NORTHING AND EASTING COORDINATES (IN METERS) ARE IN CORNERS OF MAP

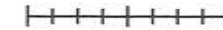
AERIAL PHOTO SOURCE: MI CENTER FOR SHARED SOLUTIONS
AERIAL PHOTO DATE: 2010
AERIAL RESOLUTION: 1 foot Natural Color



0 30 60 120 Meters



0 130 260 520 Feet



1 inch = 500 feet

Wurtsmith - F41
Colbath Road - Alexander Road
ERNIE ID 35000153
OSCODA TOWNSHIP, IOSCO COUNTY
T24NS R9E SECTIONS 7 & 18

SITE MAP

GEOLOGIST
Jeff Pincumbe
Geological Services
Section



CREATION DATE
December 2018

Remediation and
Redevelopment
Division

FIGURE 2



LEGEND

- Soil Boring / Monitor Well Location
- April 2019 Contour

- DATUM - NAD83
- PROJECTION: ESRI
- NORTHING AND EASTING COORDINATES (IN METERS) ARE IN CORNERS OF MAP

AERIAL PHOTO SOURCE: MI CENTER FOR SHARED SOLUTIONS
 AERIAL PHOTO DATE: 2010
 AERIAL RESOLUTION: 1 foot Natural Color



0 30 60 120 Meters
 0 130 260 520 Feet
 1 inch = 500 feet

Wurtsmith - F41 Colbath Road - Alexander Road ERNIE ID 35000153 OSCODA TOWNSHIP, IOSCO COUNTY T24NS R9E SECTIONS 7 & 18		
April 2019 Groundwater Contour Map		
GEOLOGIST Jeff Pincumbe Geological Services Section	 <small>MINNESOTA DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND FORESTS</small>	CREATION DATE April 2019
Remediation and Redevelopment Division		FIGURE 3

(last 5 readings before sampling)

WELL	SCREEN INTERVAL ft	DATE	TIME	BEGINNING STATIC ft	FINAL STATIC ft	pH ± 0.1					CONDUCTIVITY 3%					Percent Dissolved Oxygen 10%					TURBIDITY 10%				
						mS/cm					%					NTU									
CR-MW-1	17.50	4/15/2019	14:01	12.85	12.86	7.65	7.53	7.40	7.35	7.33	0.113	0.108	0.107	0.107	0.106	22.9	23.3	22.8	22.9	22.8	1.22	0.92	0.86	0.93	0.76
CR-MW-3	25.00	4/15/2019	15:20	16.25	16.58	8.29	8.31	8.34			0.153	0.154	0.154			71.6	72.1	71.7			10.48	5.71	4.19		
CR-MW-3	19.00	4/15/2019	16:00	10.74	10.76	8.82	8.96	8.99	9.01		0.090	0.081	0.081	0.080		71.9	57.4	57.5	54.3		104	23.9	8.53	7.26	
CR-MW-5	24.50	4/15/2019	14:40	18.12	18.22	8.33	8.30	8.33	8.39	8.35	0.194	0.187	0.174	0.169	0.172	9.7	9.8	9.7	9.8	9.8	2.43	2.37	1.66	1.07	0.49
CR-MW-6	25.50	4/15/2019	15:20	18.49	20.06	7.87	7.76	7.74	7.75	7.76	0.390	0.395	0.396	0.395	0.393	4.5	4.1	4.4	4.7	4.6	9.01	5.16	5.12	9.65	9.32
CR-MW-7	16.00	4/15/2019	14:40	14.90	14.92	8.88	8.88	8.86			0.066	0.065	0.063			58.0	528.8	59.9			5.32	2.24	1.55		
AR-MW-5	25.00	4/15/2019	14:00	19.03	19.64	8.24	8.12	8.18	8.23	8.27	0.196	0.194	0.192	0.192	0.192	9.32	9.29	9.51	9.57	9.73	102	92	44.2	17.6	12

Vista Analytical Laboratory Report

Vista Work Order No.: 1900774
 Report Date: 5/8/19
 Client: EGLE-RRD-BAY CITY
 Attention: Mike Jury
 Project Name: F-41 PFC CONTAMINATION
 Site No.: 35000153

Location:		AR-MW-5	CR-MW-1	CR-MW-1 Dup	CR-MW-2
Date:		4/15/2019	4/1/2019	4/15/2019	4/15/2019
	Action Level				
Perfluorooctanoic Acid (PFOA)	70 ng/l	ND	ND	ND	7.94
Perfluorooctane Sulfonate (PFOS)	70 ng/l	ND	ND	ND	30.7
Total PFOA and PFOS	70 ng/l	ND	ND	ND	38.64

Location:		CR-MW-3	CR-MW-5	CR-MW-6	CR-MW-7
Date:		4/15/2019	4/15/2019	4/15/2019	4/15/2019
	Action Level				
Perfluorooctanoic Acid (PFOA)	70 ng/l	ND	ND	3.26	ND
Perfluorooctane Sulfonate (PFOS)	70 ng/l	ND	ND	4.26	ND
Total PFOA and PFOS	70 ng/l	ND	ND	7.52	ND

ND = Not Detected

Monitor Wells	Top of Casing (TOC) Elevation	Ground Elevation	Total Depth from TOC	Total Depth from Ground	Static Water Level (TOC) 4/15/19	Groundwater Elevation 4/15/19
CB-MW-1	617.62	614.90	20.30	17.58	12.85	604.77
CB-MW-2	613.34	613.47	24.85	24.98	16.25	597.09
CB-MW-3	610.25	610.28	19.15	19.18	10.74	599.51
CB-MW-4	NA	606.45	NA			
CB-MW-5	613.04	613.47	23.90	24.33	18.12	594.92
CB-MW-6	613.16	613.44	25.00	25.28	18.49	594.67
CB-MW-7	615.66	613.44	18.00	15.78	14.90	600.76
CB-B-1	NA	613.94	NA			
AR-MW-5	614.53	614.92	25.00	25.35	19.03	595.50

NA = Not Available

APPENDIX A

F-41 PFC Contamination, Iosco County
Site ID #35000153

Vista Analytical Laboratory Results

May 08, 2019

Vista Work Order No. 1900774

Ms. Maya Murshak
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Dear Ms. Murshak,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on April 17, 2019 under your Project Name 'F-41 PFC Contamination'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1900774

Case Narrative

Sample Condition on Receipt:

Eight aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The matrix was not listed on the CoC; the samples have been reported as "aqueous".

Analytical Notes:

PFAS Isotope Dilution Method

Samples "CR-MW-6" contained particulate and was centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside of the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B9D0174-BS1	B9D0174-BS1	PFAS Isotope Dilution Method	13C2-PFUnA	H	59.2

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900774-01	AR-MW-5	15-Apr-19 13:55	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-02	CR-MW-1	15-Apr-19 14:01	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-03	CR-MW-1 DUP	15-Apr-19 14:01	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-04	CR-MW-2	15-Apr-19 15:20	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-05	CR-MW-3	15-Apr-19 16:00	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-06	CR-MW-5	15-Apr-19 14:40	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-07	CR-MW-6	15-Apr-19 15:20	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1900774-08	CR-MW-7	15-Apr-19 14:40	17-Apr-19 10:33	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data					Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous		Lab Sample:	B9D0174-BLK1	Column:	BEH C18		
Project:	F-41 PFC Contamination									

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFPeA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFBS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-4:2 FTS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFHxA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFPeS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFHpA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFHxS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Br-PFHxS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Total PFHxS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-6:2 FTS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFOA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Br-PFOA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Total PFOA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFHpS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFNA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFOSA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFOS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Br-PFOS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Total PFOS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFDA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-8:2FTS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFNS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-MeFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Br-MeFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Total MeFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-EtFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Br-EtFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
Total EtFOSAA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFUnA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFDS	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFDoA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFTrDA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
L-PFTeDA	ND	1.37	2.00	4.00		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.0	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C3-PFPeA	IS	93.2	60 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C3-PFBS	IS	91.2	60 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9D0174-BLK1	Column:	BEH C18
Project:	F-41 PFC Contamination						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	84.0	40 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFHxA	IS	89.1	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C4-PFHpA	IS	90.7	60 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C3-PFHxS	IS	89.4	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-6:2 FTS	IS	92.7	40 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFOA	IS	80.4	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C5-PFNA	IS	78.7	50 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C8-PFOA	IS	52.9	20 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C8-PFOS	IS	80.7	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFDA	IS	67.5	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-8:2 FTS	IS	90.7	40 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
d3-MeFOSAA	IS	69.0	50 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
d5-EtFOSAA	IS	71.4	50 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFUnA	IS	70.1	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFDoA	IS	47.7	30 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1
13C2-PFTeDA	IS	31.5	20 - 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:36	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9D0174-BS1	Column:	BEH C18
Project:	F-41 PFC Contamination						

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	41.3	40.0	103	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFPeA	40.9	40.0	102	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFBS	42.5	40.0	106	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-4:2 FTS	46.6	40.0	116	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFHxA	41.7	40.0	104	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFPeS	46.7	40.0	117	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFHpA	42.5	40.0	106	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
Total PFHxS	35.9	40.0	89.8	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-6:2 FTS	46.0	40.0	115	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
Total PFOA	41.5	40.0	104	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFHpS	41.8	40.0	104	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFNA	40.1	40.0	100	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFOSA	40.0	40.0	100	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
Total PFOS	37.4	40.0	93.6	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFDA	42.5	40.0	106	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-8:2FTS	39.6	40.0	99.0	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFNS	36.3	40.0	90.7	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
Total MeFOSAA	40.1	40.0	100	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
Total EtFOSAA	34.9	40.0	87.4	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFUnA	43.3	40.0	108	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFDS	25.2	40.0	63.1	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFDoA	46.7	40.0	117	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFTrDA	34.7	40.0	86.8	60 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
L-PFTeDA	42.5	40.0	106	70 - 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.8	60- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C3-PFPeA	IS	90.4	60- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C3-PFBS	IS	90.0	60- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-4:2 FTS	IS	86.8	40- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFHxA	IS	94.0	70- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C4-PFHpA	IS	83.3	60- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C3-PFHxS	IS	91.8	60- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-6:2 FTS	IS	84.1	40- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFOA	IS	86.6	60- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C5-PFNA	IS	78.6	50- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9D0174-BS1	Column:	BEH C18
Project:	F-41 PFC Contamination						

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	57.9	20- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C8-PFOS	IS	81.1	60- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFDA	IS	75.8	60- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-8:2 FTS	IS	79.8	40- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
d3-MeFOSAA	IS	76.4	50- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
d5-EtFOSAA	IS	84.2	50- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFUnA	IS	59.2	60- 130	H	B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFDoA	IS	43.8	30- 130		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1
13C2-PFTeDA	IS	33.0	20- 150		B9D0174	26-Apr-19	0.250 L	30-Apr-19 23:25	1

Sample ID: AR-MW-5
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-01	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 13:55	Date Received:	17-Apr-19 10:33		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFPeA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFBS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-4:2 FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFHxA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFPeS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFHpA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Br-PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Total PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-6:2 FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Br-PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Total PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFHpS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFNA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFOSA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Br-PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Total PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-8:2FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFNS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Br-MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Total MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Br-EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
Total EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFUnA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFDS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFDoA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFTTrDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
L-PFTeDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.6	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C3-PFPeA	IS	93.7	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C3-PFBS	IS	99.8	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1

Sample ID: AR-MW-5 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-01	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 13:55	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	99.5	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFHxA	IS	94.1	70 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C4-PFHpA	IS	91.4	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C3-PFHxS	IS	95.6	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-6:2 FTS	IS	90.6	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFOA	IS	94.0	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C5-PFNA	IS	96.3	50 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C8-PFOA	IS	68.2	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C8-PFOS	IS	91.0	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFDA	IS	92.6	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-8:2 FTS	IS	90.2	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
d3-MeFOSAA	IS	81.7	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
d5-EtFOSAA	IS	94.0	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFUnA	IS	87.9	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFDoA	IS	76.5	30 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1
13C2-PFTeDA	IS	63.8	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 01:32	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-1
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-02	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:01	Date Received:	17-Apr-19 10:33		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFPeA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFBS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-4:2 FTS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFHxA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFPeS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFHpA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFHxS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Br-PFHxS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Total PFHxS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-6:2 FTS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFOA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Br-PFOA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Total PFOA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFHpS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFNA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFOSA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFOS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Br-PFOS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Total PFOS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFDA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-8:2FTS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFNS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-MeFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Br-MeFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Total MeFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-EtFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Br-EtFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
Total EtFOSAA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFUnA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFDS	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFDoA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFTrDA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
L-PFTeDA	ND	1.37	2.01	4.01		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.0	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C3-PFPeA	IS	93.2	60 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C3-PFBS	IS	108	60 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1

Sample ID: CR-MW-1 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-02	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:01	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	106	40 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFHxA	IS	93.6	70 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C4-PFHpA	IS	96.3	60 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C3-PFHxS	IS	101	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-6:2 FTS	IS	102	40 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFOA	IS	96.9	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C5-PFNA	IS	89.1	50 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C8-PFOA	IS	68.7	20 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C8-PFOS	IS	97.8	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFDA	IS	90.5	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-8:2 FTS	IS	87.8	40 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
d3-MeFOSAA	IS	98.9	50 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
d5-EtFOSAA	IS	96.6	50 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFUnA	IS	86.5	60 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFDoA	IS	75.6	30 - 130		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1
13C2-PFTeDA	IS	69.8	20 - 150		B9D0174	26-Apr-19	0.249 L	01-May-19 01:43	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-1 DUP
PFAS Isotope Dilution Method

Client Data					Laboratory Data							
Name:	Merit Laboratories, Inc.			Matrix:	Aqueous		Lab Sample:	1900774-03		Column:	BEH C18	
Project:	F-41 PFC Contamination			Date Collected:	15-Apr-19 14:01		Date Received:	17-Apr-19 10:33				

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFPeA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFBS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-4:2 FTS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFHxA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFPeS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFHpA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFHxS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Br-PFHxS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Total PFHxS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-6:2 FTS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFOA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Br-PFOA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Total PFOA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFHpS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFNA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFOSA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFOS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Br-PFOS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Total PFOS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFDA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-8:2FTS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFNS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-MeFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Br-MeFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Total MeFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-EtFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Br-EtFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
Total EtFOSAA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFUnA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFDS	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFDoA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFTrDA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
L-PFTeDA	ND	1.33	1.94	3.88		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.0	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C3-PFPeA	IS	94.3	60 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C3-PFBS	IS	92.1	60 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1

Sample ID: CR-MW-1 DUP **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-03	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:01	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	91.7	40 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFHxA	IS	95.6	70 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C4-PFHpA	IS	95.1	60 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C3-PFHxS	IS	91.4	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-6:2 FTS	IS	88.4	40 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFOA	IS	89.5	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C5-PFNA	IS	93.2	50 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C8-PFOA	IS	60.6	20 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C8-PFOS	IS	94.5	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFDA	IS	80.0	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-8:2 FTS	IS	83.1	40 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
d3-MeFOSAA	IS	87.2	50 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
d5-EtFOSAA	IS	93.4	50 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFUnA	IS	80.8	60 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFDoA	IS	66.0	30 - 130		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1
13C2-PFTeDA	IS	66.7	20 - 150		B9D0174	26-Apr-19	0.258 L	01-May-19 01:53	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-2
PFAS Isotope Dilution Method

Client Data					Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous		Lab Sample:	1900774-04	Column:	BEH C18		
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 15:20		Date Received:	17-Apr-19 10:33				

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	3.15	1.40	2.03	4.07	J	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFPeA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFBS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-4:2 FTS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFHxA	2.53	1.40	2.03	4.07	J	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFPeS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFHpA	4.02	1.40	2.03	4.07	J	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFHxS	2.77	1.40	2.03	4.07	J	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Br-PFHxS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Total PFHxS	3.33	1.40	2.03	4.07	J	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-6:2 FTS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFOA	7.25	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Br-PFOA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Total PFOA	7.94	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFHpS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFNA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFOSA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFOS	23.4	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Br-PFOS	7.23	1.40	2.03	4.07	Q	B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Total PFOS	30.7	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFDA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-8:2FTS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFNS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-MeFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Br-MeFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Total MeFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-EtFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Br-EtFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
Total EtFOSAA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFUnA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFDS	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFDoA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFTTrDA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
L-PFTeDA	ND	1.40	2.03	4.07		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.6	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C3-PFPeA	IS	96.7	60 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C3-PFBS	IS	93.8	60 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1

Sample ID: CR-MW-2 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-04	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 15:20	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	95.9	40 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFHxA	IS	96.7	70 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C4-PFHpA	IS	96.4	60 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C3-PFHxS	IS	96.4	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-6:2 FTS	IS	101	40 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFOA	IS	92.1	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C5-PFNA	IS	92.7	50 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C8-PFOA	IS	56.2	20 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C8-PFOS	IS	96.3	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFDA	IS	84.6	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-8:2 FTS	IS	88.5	40 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
d3-MeFOSAA	IS	83.5	50 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
d5-EtFOSAA	IS	90.5	50 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFUnA	IS	74.4	60 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFDoA	IS	75.2	30 - 130		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1
13C2-PFTeDA	IS	73.2	20 - 150		B9D0174	26-Apr-19	0.246 L	01-May-19 02:04	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-3

PFAS Isotope Dilution Method

Client Data					Laboratory Data							
Name:	Merit Laboratories, Inc.			Matrix:	Aqueous		Lab Sample:	1900774-05		Column:	BEH C18	
Project:	F-41 PFC Contamination			Date Collected:	15-Apr-19 16:00		Date Received:	17-Apr-19 10:33				

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFPeA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFBS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-4:2 FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFHxA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFPeS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFHpA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Br-PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Total PFHxS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-6:2 FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Br-PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Total PFOA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFHpS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFNA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFOSA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Br-PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Total PFOS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-8:2FTS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFNS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Br-MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Total MeFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Br-EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
Total EtFOSAA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFUnA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFDS	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFDoA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFTTrDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
L-PFTeDA	ND	1.36	1.99	3.98		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.2	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C3-PFPeA	IS	94.3	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C3-PFBS	IS	100	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1

Sample ID: CR-MW-3 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-05	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 16:00	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	98.7	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFHxA	IS	94.6	70 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C4-PFHpA	IS	101	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C3-PFHxS	IS	96.9	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-6:2 FTS	IS	101	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFOA	IS	101	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C5-PFNA	IS	86.2	50 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C8-PFOA	IS	62.9	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C8-PFOS	IS	89.4	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFDA	IS	88.9	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-8:2 FTS	IS	78.6	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
d3-MeFOSAA	IS	72.1	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
d5-EtFOSAA	IS	75.6	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFUnA	IS	67.2	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFDoA	IS	72.2	30 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1
13C2-PFTeDA	IS	67.4	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:15	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-5
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-06	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:40	Date Received:	17-Apr-19 10:33		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFPeA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFBS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-4:2 FTS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFHxA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFPeS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFHpA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFHxS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Br-PFHxS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Total PFHxS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-6:2 FTS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFOA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Br-PFOA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Total PFOA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFHpS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFNA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFOSA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFOS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Br-PFOS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Total PFOS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFDA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-8:2FTS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFNS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-MeFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Br-MeFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Total MeFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-EtFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Br-EtFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
Total EtFOSAA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFUnA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFDS	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFDoA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFTTrDA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
L-PFTeDA	ND	1.37	1.99	3.99		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.2	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C3-PFPeA	IS	95.9	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C3-PFBS	IS	94.2	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1

Sample ID: CR-MW-5 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-06	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:40	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	87.9	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFHxA	IS	97.4	70 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C4-PFHpA	IS	92.3	60 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C3-PFHxS	IS	88.1	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-6:2 FTS	IS	105	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFOA	IS	93.8	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C5-PFNA	IS	86.3	50 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C8-PFOA	IS	60.2	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C8-PFOS	IS	96.8	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFDA	IS	82.5	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-8:2 FTS	IS	93.2	40 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
d3-MeFOSAA	IS	74.0	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
d5-EtFOSAA	IS	80.1	50 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFUnA	IS	69.0	60 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFDoA	IS	75.8	30 - 130		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1
13C2-PFTeDA	IS	71.2	20 - 150		B9D0174	26-Apr-19	0.251 L	01-May-19 02:25	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-6
PFAS Isotope Dilution Method

Client Data					Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-07	Column:	BEH C18			
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 15:20	Date Received:	17-Apr-19 10:33					

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	4.62	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFPeA	2.48	1.39	2.02	4.06	J	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFBS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-4:2 FTS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFHxA	4.42	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFPeS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFHpA	1.76	1.39	2.02	4.06	J	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFHxS	9.30	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Br-PFHxS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Total PFHxS	10.6	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-6:2 FTS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFOA	3.20	1.39	2.02	4.06	J	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Br-PFOA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Total PFOA	3.26	1.39	2.02	4.06	J	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFHpS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFNA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFOSA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFOS	2.39	1.39	2.02	4.06	J	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Br-PFOS	1.87	1.39	2.02	4.06	J, Q	B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Total PFOS	4.26	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFDA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-8:2FTS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFNS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-MeFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Br-MeFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Total MeFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-EtFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Br-EtFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
Total EtFOSAA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFUnA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFDS	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFDoA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFTTrDA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
L-PFTeDA	ND	1.39	2.02	4.06		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.6	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C3-PFPeA	IS	96.2	60 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C3-PFBS	IS	99.2	60 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1

Sample ID: CR-MW-6 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-07	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 15:20	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	106	40 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFHxA	IS	96.0	70 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C4-PFHpA	IS	92.6	60 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C3-PFHxS	IS	94.7	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-6:2 FTS	IS	94.3	40 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFOA	IS	95.8	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C5-PFNA	IS	93.8	50 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C8-PFOA	IS	72.7	20 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C8-PFOS	IS	93.3	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFDA	IS	88.5	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-8:2 FTS	IS	94.3	40 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
d3-MeFOSAA	IS	83.5	50 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
d5-EtFOSAA	IS	95.0	50 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFUnA	IS	77.0	60 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFDoA	IS	74.6	30 - 130		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1
13C2-PFTeDA	IS	69.9	20 - 150		B9D0174	26-Apr-19	0.247 L	01-May-19 02:36	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

Sample ID: CR-MW-7

PFAS Isotope Dilution Method

Client Data					Laboratory Data							
Name:	Merit Laboratories, Inc.			Matrix:	Aqueous		Lab Sample:	1900774-08		Column:	BEH C18	
Project:	F-41 PFC Contamination			Date Collected:	15-Apr-19 14:40		Date Received:	17-Apr-19 10:33				

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
L-PFBA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFPeA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFBS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-4:2 FTS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFHxA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFPeS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFHpA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFHxS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Br-PFHxS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Total PFHxS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-6:2 FTS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFOA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Br-PFOA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Total PFOA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFHpS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFNA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFOSA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFOS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Br-PFOS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Total PFOS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFDA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-8:2FTS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFNS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-MeFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Br-MeFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Total MeFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-EtFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Br-EtFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
Total EtFOSAA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFUnA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFDS	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFDoA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFTTrDA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
L-PFTeDA	ND	1.40	2.04	4.08		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.9	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C3-PFPeA	IS	98.6	60 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C3-PFBS	IS	98.4	60 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1

Sample ID: CR-MW-7 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1900774-08	Column:	BEH C18
Project:	F-41 PFC Contamination	Date Collected:	15-Apr-19 14:40	Date Received:	17-Apr-19 10:33		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	94.5	40 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFHxA	IS	97.4	70 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C4-PFHpA	IS	101	60 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C3-PFHxS	IS	98.1	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-6:2 FTS	IS	93.0	40 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFOA	IS	93.0	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C5-PFNA	IS	85.2	50 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C8-PFOA	IS	59.8	20 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C8-PFOS	IS	94.2	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFDA	IS	86.0	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-8:2 FTS	IS	87.4	40 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
d3-MeFOSAA	IS	68.8	50 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
d5-EtFOSAA	IS	77.9	50 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFUnA	IS	70.1	60 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFDoA	IS	75.4	30 - 130		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1
13C2-PFTeDA	IS	70.7	20 - 150		B9D0174	26-Apr-19	0.245 L	01-May-19 02:46	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: 1900774 Temp: 4.6 °C
 Storage ID: WR-2 Storage Secured: Yes No

Project ID: F-41 PFC CONTAMINATION PO#: JOB# 6B22 Sampler: JEFF PINCUMBE
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Invoice to: Name MICH DEPART. OF ENV. QUALITY Company _____ Address RRO ADMIN. City LANSING State MICH Ph# 517 243 3171 Fax# _____

Relinquished by (printed name and signature) JEFF PINCUMBE Date 4-16-19 Time 1600 Received by (printed name and signature) Amy Ashley Mason Date 04/17/19 Time 1033

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

Method of Shipment: UPS
 Tracking No.: _____

Add Analysis(es) Requested

Container(s)	Mod. EPA Method 537	EPA Method 537 (DW only)
Quantity	PFOA/PFOS	UCMR3 PFAS List: 6
Type	537 List: 14	Full List of 26
Matrix	Other: Please List	
	PFOA/PFOS	UCMR3 PFAS List: 6
	PFAS List: 14	

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List: 6	537 List: 14	Full List of 26	Other: Please List	PFOA/PFOS	UCMR3 PFAS List: 6	PFAS List: 14	Comments
AR-MW-5	4-15-16	1355		2					X						
CR-MW-1		1401		2					X						
CR-MW-1 DW		1401		2					X						
CR-MW-2		1520		2					X						
CR-MW-3		1600		2					X						
CR-MW-5		1440		2					X						
CR-MW-6		1520		2					X						
CR-MW-7		1440		2					X						

Special Instructions/Comments:
SEND COPY TO JUDGE J. MICHIGAN. GOV

SEND DOCUMENTATION AND RESULTS TO:

Name: JEFF PINCUMBE
 Company: MOEG
 Address: 635 FILLEY ST
 City: LANSING State: MI Zip: 48906
 Phone: 517 243 3171 Fax: _____
 Email: PINCUMBE@MICHIGAN.GOV

Container Types: P= HDPE, PJ= HDPE Jar
 Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1900774 TAT std

Samples Arrival:	Date/Time 4/17/19 1033	Initials: AM	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 04/17/19 1428	Initials: MS/KE	Location: WR-2 Shelf/Rack: A2/E3
Delivered By:	FedEx <u>UPS</u> On Trac GSO DHL Hand Delivered Other		
Preservation:	<u>Ice</u> Blue Ice Dry Ice None		
Temp °C: 4.7 (uncorrected)		Probe used: Y / <u>N</u>	Thermometer ID: <u>IR-4</u>
Temp °C: 4.6 (corrected)			

	YES	NO	NA
Adequate Sample Volume Received?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Custody Seals Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Airbill <input checked="" type="checkbox"/> Trk # <u>1Z 459 110 22 1004 5997</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Custody Seals Intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC Anomaly/Sample Acceptance Form completed? <u>*SEE ANOMALY</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Preservation Documented:	Na ₂ S ₂ O ₃ Trizma None Other	Yes No <u>NA</u>	
Shipping Container	<u>Vista</u> Client <u>Retain</u> Return Dispose		

Sample #
OZA
OZB

Comments:
Vista label (COC)
"CR-MW-1"
"CR-MW-1"

client label
"CR MW1"
"CR-MW1"

DOES NOT AFFECT SAMPLE INTEGRITY KE
04/17/19

* NO WATER X

Chain of Custody Anomaly/Sample Acceptance Form



Client: Merit Laboratories, Inc.
Contact: Maya Murshak
Email: mayamurshak@meritlabs.com
Phone: (517) 827-2744

Workorder Number: 1900774
Date Received: 17-Apr-19 10:33
Documented by/date: M Sparks 04/17/19

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

- Sample Collection Date and/or Time not provided
- Temperature outside Method Requirement (WI-PHT)
Temperature _____ °C Ice Present? Yes No Melted
- Sample ID Not Reconcilable
- Sample Holding Time Missed
- Insufficient Sample Size
- All Sample Container(s) Broken
- Drinking Water Incorrect Container Type
- Chain-of-Custody not received, illegible or destroyed
- Other: **See Comments**

Comments/Samples Affected:

- ✓ Chain of Custody received with no Matrix listed

Client Authorization

Proceed with Analysis: YES NO

Signature and Date

 05/07/19

Client Comments/Instructions Client notified via email on 04/22/19.

Reporting samples as "aqueous."